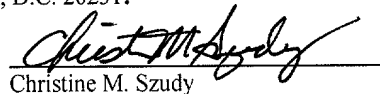


CERTIFICATION OF MAILING

I hereby certify that the attached patent application (along with any other paper referred to as being attached or enclosed) is being deposited with the United States Postal Service on this date March 30, 2001, in an envelope as "Express Mail Post Office to Addressee" Mailing Label Number EL798604991US addressed to the: Box Patent Application, Assistant Commissioner for Patents, Washington, D.C. 20231.

3/30/01
Date


Christine M. Szudy

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re patent application of:

Applicants: Thomas B. Harsch

Examiner: Daniel Previl (Anticipated)

Serial No:

Art Unit: 2632 (Anticipated)

Filing Date: Herewith

Title: METHOD TO SUSTAIN TCP CONNECTION

Box Patent Application
Assistant Commissioner for Patents
U.S. Patent and Trademark Office
Washington, D.C. 20231

PRELIMINARY AMENDMENT

Dear Sir:

Please amend the above-identified application as indicated below.

CLEAN VERSION OF AMENDMENT AND ALL PENDING CLAIMS**In the Specification:**

Page 1, after the title, insert the following paragraph:

--Related Application

This application is a continuation of Serial No. 08/841,464 filed April 22, 1997.--

In the Claims:

Please cancel claims 1-29 without prejudice or disclaimer.

Please add new claims 30-49:

--30. (New) A network device for use in a communication system, the network device having a predetermined period of time during which, if no communication is received from a mobile communication unit, the network device ends an established connection with the mobile communication unit, the network device comprising:

a processor operative to control the network device;

a transceiver coupled to the processor, the transceiver operative to transmit and receive information between the mobile communication unit and the network device upon a connection being established between the mobile communication unit and the network device; and

wherein the processor of the network device periodically receives an unsolicited keepalive packet from the mobile communication unit at predetermined intervals, the keepalive packet serving to reset the predetermined period of time such that the network device does not end the established connection.

31. (New) The network device of claim 30, wherein the keepalive packet transmitted from the mobile communication unit to the network device is effectively transparent to the network device.

32. (New) The network device of claim 30, the predetermined period of time being determined by a keepidle timer.

33. (New) The network device of claim 32, the network device sending a keepalive probe upon expiration of the keepidle timer and ending the connection if a response is not received by the mobile communication unit in a predetermined response period wherein the keepalive packet acts as a response resetting at least one of the keepidle timer and the predetermined response period.

34. (New) The network device of claim 30, the predetermined period of time comprising the time it takes for a keepidle timer to expire, a keep alive probe to be sent upon expiration of the keepidle timer and a predetermined response time for the mobile communication unit to respond to the keep alive probe to expire.

35. (New) The network device of claim 30, wherein the keepalive packet transmitted from the mobile communication unit to the network device serves solely to reset the predetermined period of time so that the network device does not end the connection.

36. (New) The network device of claim 30, wherein the network device periodically receives the keepalive packet from the mobile communication unit in time intervals which are less than the predetermined time set by the network device.

37. (New) The network device of claim 30, wherein the mobile communication unit and the network device communicate using a TCP protocol.

38. (New) The network device of claim 30, the network device being a host computer.

39. (New) A keepalive packet for use in a communication system, the keepalive packet serving to reset a predetermined period of time that a network device ends a connection with a mobile communication unit, the keepalive packet comprising:

a preamble field having synchronizing bits for allowing the network device to synchronize to the packet;

a header field following the preamble field;
a source address field holding the address of the mobile communication unit from which the packet originates;
a destination field holding the address of the network device for which the packet is directed;
a sending sequence field relating to the number of bytes of the packet;
a last sequence field provided to allow the network device to determine the last sequence number sent by the network device to the mobile communication unit; and
error correction field provided to allow the network device to determine if it has properly received the packet.

40. (New) The keepalive packet of claim 39, the header field containing information of at least one of packet length, packet type and temporary identification of the mobile communication unit.

41. (New) The keepalive packet of claim 39, further comprising a number representative of a random starting number chosen by the mobile communication unit plus the number of bytes of data inside the packet.

42. (New) The keepalive packet of claim 39, the sending sequence field comprising a number one less than a sending sequence number expected by the network device.

43. (New) The keepalive packet of claim 42, wherein by sending a sequence field comprising a number one less than a sending sequence number expected by the network device causes the network device to immediately return an acknowledgment packet to the mobile communication unit.

44. (New) The keepalive packet of claim 42, wherein by sending a sequence field comprising a number one less than a sending sequence number expected by the network device causes the network device to not advance the sequence number of the network device, such that the synchronization state between the mobile communication unit and the network device is not changed.

45. (New) The keepalive packet of claim 39, the sending sequence field comprising a number equal to the last number stored in a stack of the mobile communication unit plus the number of bytes of the packet.

46. (New) The network device of claim 39, wherein the packet is transmitted using a TCP protocol.

47. (New) A method for maintaining a connection between a network device and a mobile communication unit, comprising:

ending the connection by the network device if no communication is received from the mobile communication unit for a predetermined period of time; and

transmitting a keepalive packet from the mobile communication unit to the network device, the keepalive packet serving to reset the predetermined period of time so that the network device does not end the connection.

48. (New) A mobile communication unit for use in a communication system, the communication system including a network device, the network device having a predetermined period of time during which, if no communication is received from the mobile communication unit, the network device ends an established connection with the mobile communication unit, the mobile communication unit comprising:

a processor operative to control the mobile communication unit;

a transmitter coupled to the processor, the transmitter operative to transmit information to the network device upon a connection being established between the mobile communication unit and the network device; and

wherein the processor of the mobile communication unit transmits a keepalive packet to the network device, the keepalive packet serving to reset the predetermined period of time so that the network device does not end the established connection.

49. (New) A communication system comprising:

a mobile client;

a network device adapted to determine if no communication from the mobile client is received for a predetermined period of time during a connection and ending the connection with the mobile client if the predetermined period of time expires prior to the network device receiving communication from the mobile client; and

wherein the mobile client transmits a keepalive packet to the network device, the keepalive packet serving to reset the predetermined period of time so that the network device does not end the connection.--

Remarks

Claims 1-29 have been cancelled from the parent application and new claims 30-49 have been added. The application is now believed to be in condition for purpose of examination.

Respectfully submitted,

AMIN & TUROCY, LLP

Christopher P. Harris

Christopher P. Harris

Reg. No. 43,660

AMIN & TUROCY, LLP
1900 East 9TH Street, 24TH Floor
Cleveland, Ohio 44114
Telephone: (216) 696-8730
Facsimile: (216) 696-8731

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